Pisinemo Intertie
PWSID No. 0400030

Sanitary Survey

March 24, 2016

Chlorination Unit for Well 3 (TP001)

Well 3 (GW003)

This well is located within a locked fenced area approximately 4.3 miles southeast of the elevated storage tank in the Pisinemo community.

Well 3 (GW003)

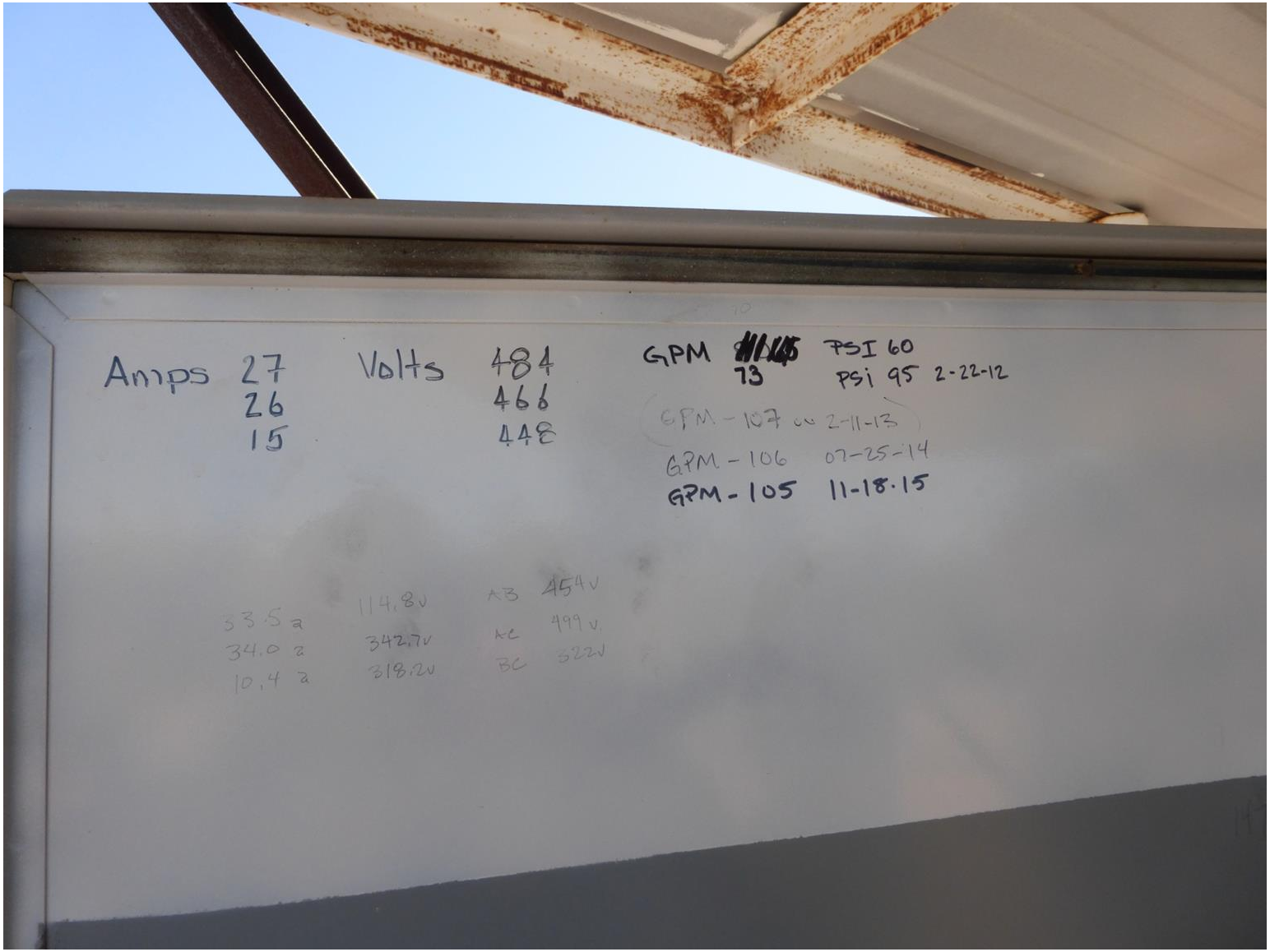
Information from TOUA indicates the well was drilled and cased to a depth of 500 feet on June 15, 1992. The casing is slotted between 353 and 500 feet. A pump test was completed in 1992 and indicated a static water level of 331.78 feet and a pumping water level of 350.43 feet at 101 gpm.

Well 3 (GW003)

Finished water sample station.

Well 3 (GW003)

The pitless unit wellhead is equipped with a properly vented sanitary seal well cap.



The well is equipped with a 20-hp submersible pump that produces approximately 105 gpm according to meter readings.

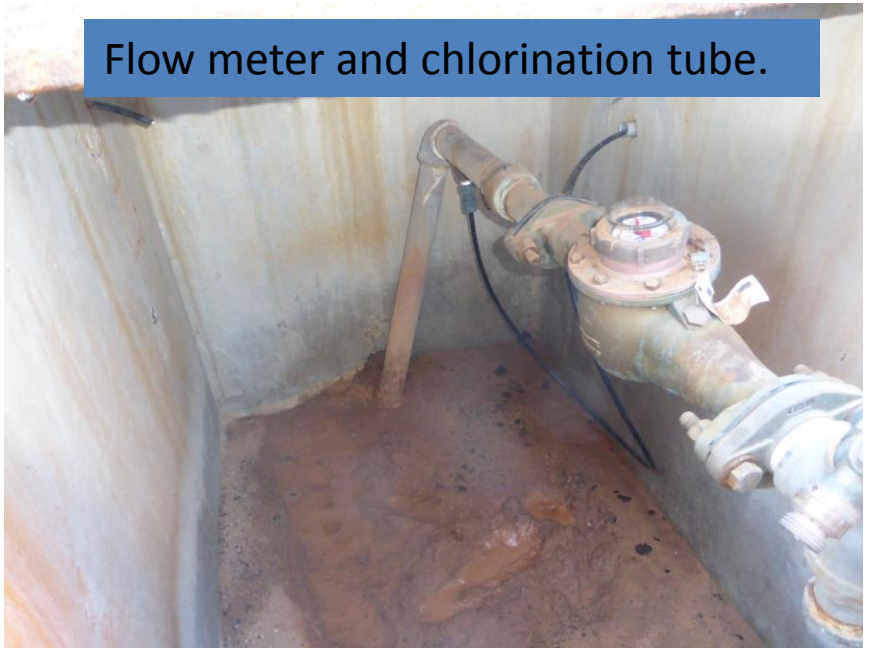
Well 3 (GW003)

The discharge piping for the well has a blowoff, raw water hose bib, pressure relief valve, flow meter, and a finished water sample station.

Pressure relief valve and hose bib.

Treated water sample station.

Flow meter and chlorination tube.



Chlorination Unit for Well 3 (TP001)

Treatment for Well 3 consists of chlorination with NSF-certified sodium hypochlorite. The chlorination unit is located in a locked structure within the fenced area for Well 3. The sodium hypochlorite is injected into the well's discharge piping (located within a buried vault adjacent to the well) with a ProMinent ConceptPlus positive displacement pump with a capacity of 1.03 gph.

Chlorination Unit for Well 4 (TP002)

Well 4 (GW004)

This well is located within a locked fenced area approximately 500 feet southeast of Well 3.

Small pressure relief valve.

Well 4 (GW004)

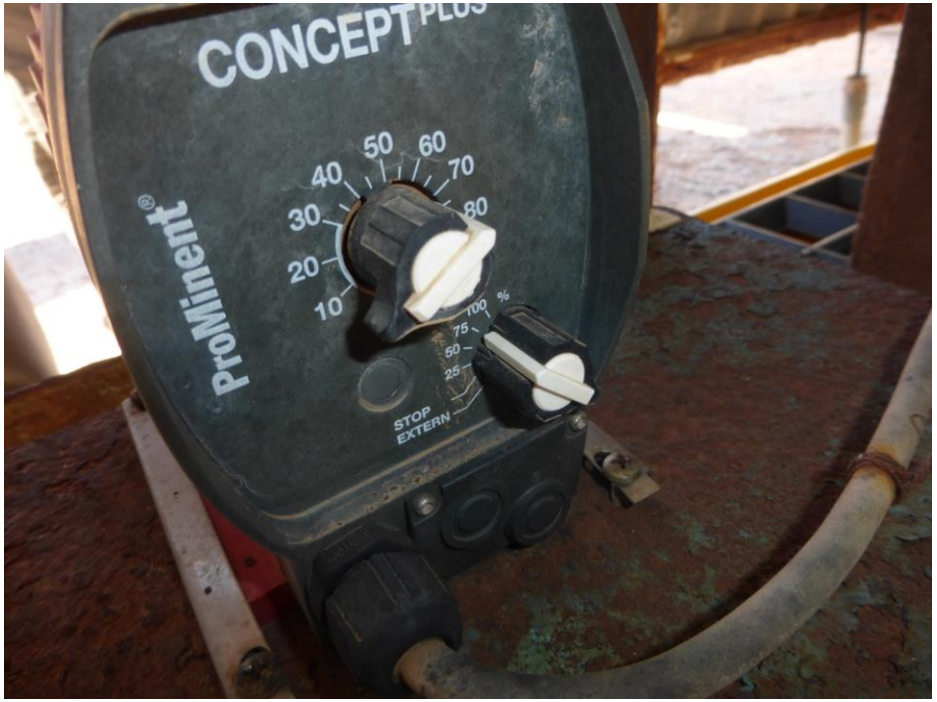
The discharge piping for the well has been brought above-grade and the vault noted during the previous survey is now empty. The wellhead discharge piping has a blowoff, raw water sample station, pressure relief valve, flow meter, and a hose bib where raw water can be obtained. The pressure relief valve is likely too small to provide adequate pressure relief for the 92 gpm flow from the well. There is no tap available to take finished water samples at the well site.

Well 4 (GW004)

The pitless unit wellhead is equipped with a properly vented sanitary seal well cap.

The well is equipped with a 20-hp submersible pump that produces approximately 92 gpm according to meter readings. The motor for the pump was replaced in 2011.

Chlorination Unit for Well 4 (TP002)



Treatment for Well 4 consists of chlorination with NSF-certified sodium hypochlorite. The chlorination unit is located in a locked structure within the fenced area for Well 4. The sodium hypochlorite is injected into the well's discharge piping with a ProMinent ConceptPlus positive displacement pump with a capacity of 1.03 gph.

Arsenic Treatment Plant (TP003)

The plant is located in a building within the same fenced area as the elevated storage tank. This plant operates with water from Wells 3 and 4 entering the pipe and going to Severn Trent Services dual adsorption vessels in a parallel operation.

Arsenic Treatment Plant (TP003)

Control panel.

Each adsorption vessel has approximately 22 ft^3 of Bayoxide® SORB E-33 iron adsorptive media.

Control panel.

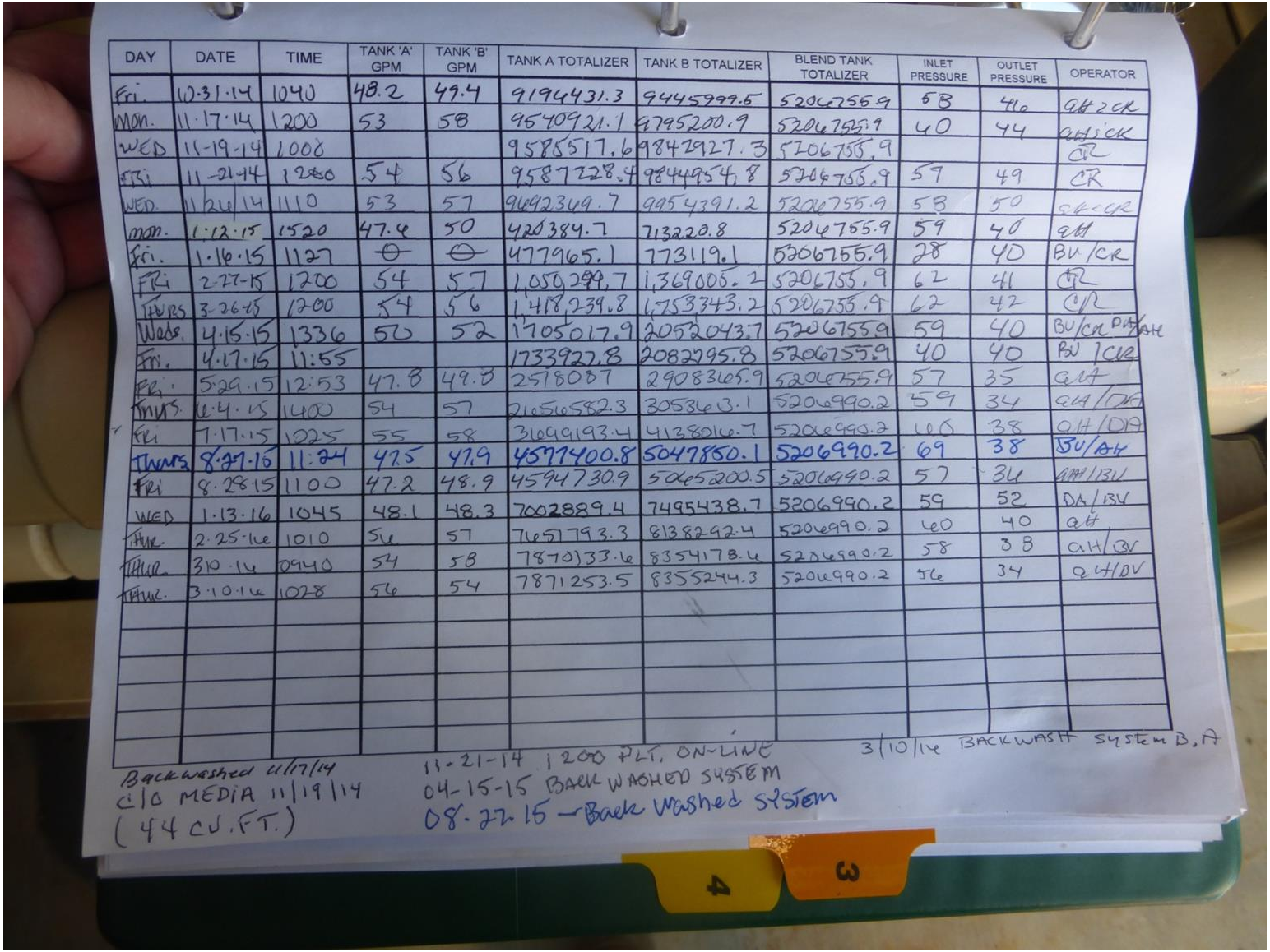
For operation, the adsorptive media will be periodically backwashed to prevent channeling or plugging of the media and to redistribute the media within the bed. The backwash water discharges into a 2,600-gallon polyethylene tank.

Bypass valve.

After allowing fines to settle, the backwash water is recycled to the front of the arsenic treatment plant. Backwashing is done manually, and records are kept of flows, pressure drop, media change-out, and backwashes at the site.

Operation information for treatment plant.

Arsenic Treatment Plant (TP003)



DAY	DATE	TIME	TANK 'A' GPM	TANK 'B' GPM	TANK A TOTALIZER	TANK B TOTALIZER	BLEND TANK TOTALIZER	INLET PRESSURE	OUTLET PRESSURE	OPERATOR
Fri.	10-31-14	1040	48.2	49.4	9194431.3	9445999.5	5206755.9	58	46	QH/CR
MON.	11-17-14	1200	53	58	9540921.1	9795200.9	5206755.9	40	44	QH/CR
WED	11-19-14	1008			9585517.6	9842927.3	5206755.9			CR
FRI	11-21-14	1200	54	56	9587228.4	9844954.8	5206755.9	59	49	CR
WED.	11/26/14	1110	53	57	9692349.7	9954391.2	5206755.9	58	50	QH/CR
MON.	1-12-15	1520	47.4	50	420384.7	713220.8	5206755.9	59	40	QH
Fri.	1-16-15	1127	⊖	⊖	477965.1	773119.1	5206755.9	28	40	BV/CR
FRI	2-27-15	1200	54	57	1,050,299.7	1,369005.2	5206755.9	62	41	CR
THURS	3-26-15	1200	54	56	1,418,239.8	1,753343.2	5206755.9	62	42	CR
Weds.	4-15-15	1336	50	52	1705017.9	2052043.7	5206755.9	59	40	BV/CR DA/QH
Fri.	4-17-15	11:55			1733922.8	2082795.8	5206755.9	40	40	BV/CR
FRI.	5-29-15	12:53	47.8	49.8	2518087	2908365.9	5206755.9	57	35	QH
THURS	6-4-15	1400	54	57	2656582.3	3053613.1	5206990.2	59	34	QH/DA
FRI	7-17-15	1025	55	58	3699193.4	4138016.7	5206990.2	60	38	QH/DA
THURS	8-27-15	11:24	47.5	47.9	4577400.8	5047850.1	5206990.2	69	38	BV/QH
FRI	8-28-15	1100	47.2	48.9	4594730.9	5065200.5	5206990.2	57	36	QH/BV
WED	1-13-16	1045	48.1	48.3	7002889.4	7495438.7	5206990.2	59	52	DA/BV
THUR.	2-25-16	1010	56	57	7651793.3	8138292.4	5206990.2	60	40	QH
THUR.	3-10-16	0940	54	58	7870133.6	8354178.4	5206990.2	58	38	QH/BV
THUR.	3-10-16	1028	56	54	7871253.5	8355244.3	5206990.2	56	34	QH/DV

Backwashed 11/17/14
C/O MEDIA 11/19/14
(44 CU.FT.)

11-21-14 1200 PLT. ON-LINE
04-15-15 BACK WASHED SYSTEM
08-27-15 – Back Washed System

3/10/16 BACKWASH SYSTEM B.A

Elevated Storage Tank (ST001)

This 125,000-gallon elevated storage tank is located within a locked fenced area approximately 1,970 feet east of BIA Route 21 in the Pisinemo community.

Elevated Storage Tank (ST001)

The tank was constructed in 1996 and has a 124.5-foot overflow elevation and a bottom elevation of 99.75 feet.

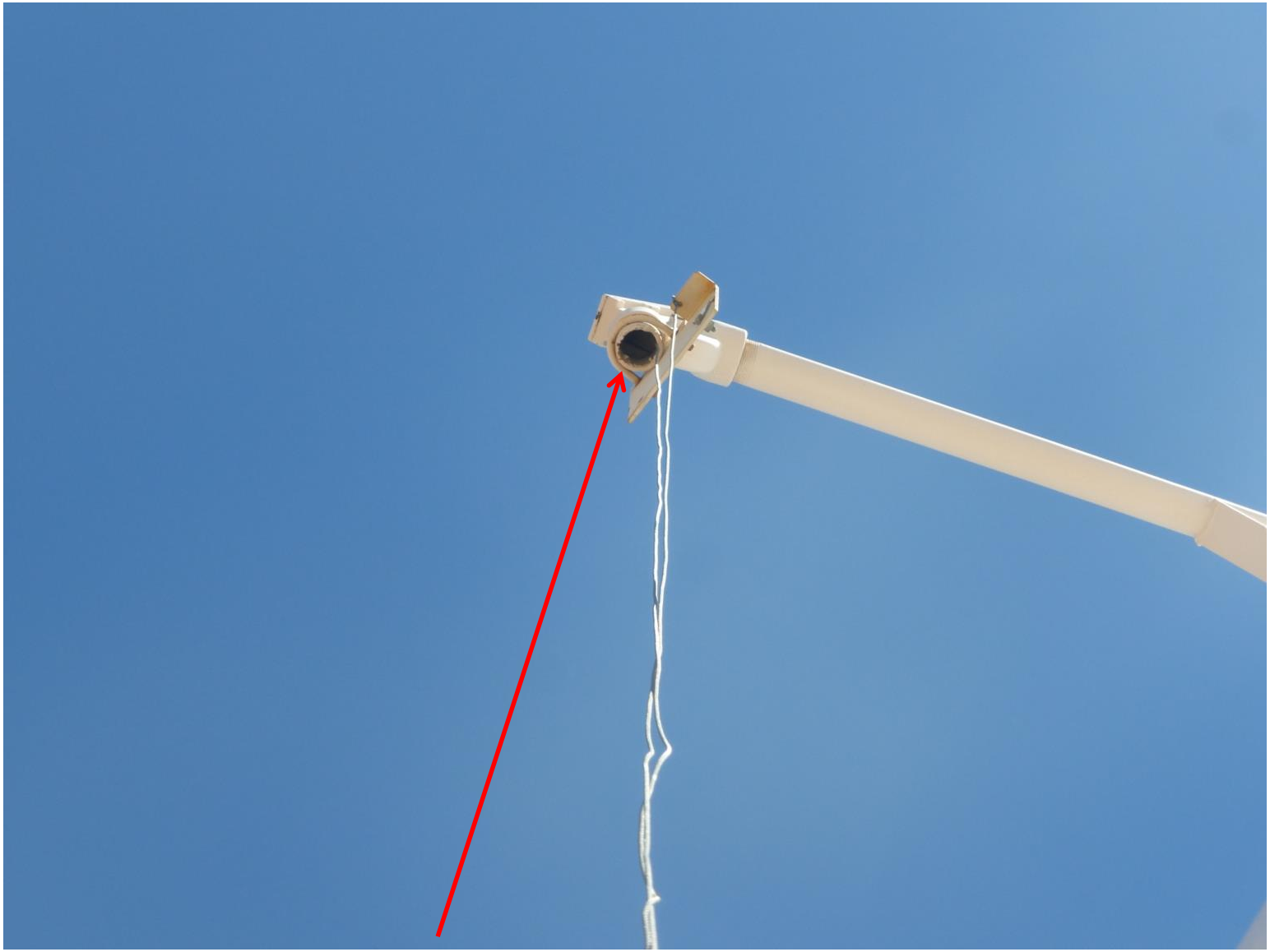
Elevated Storage Tank (ST001)

The ladder for the tank is equipped with a safety cage and safety cable. The cage opening is not equipped with a locking hatch, but there is a locking cover near the bottom of the ladder to help prevent unauthorized access.

Elevated Storage Tank (ST001)

The outlet of the overflow line is screened and terminates at an adequate distance above the ground. A splash pad is provided. The tank drain line is installed below grade and connects underground to the discharge piping from the overflow line.

The water level target mechanism was not working at the time of the survey.



The open area between target sight gauge cable and the conduit was large and would allow entry of insects into the tank.

The main access hatch at the top of the tank is bolted shut on both sides and would take a wrench to open. The access hatch properly overlaps the access riser; however, it did not appear that the access hatch was equipped with a gasket (the hatch was not opened during the survey).

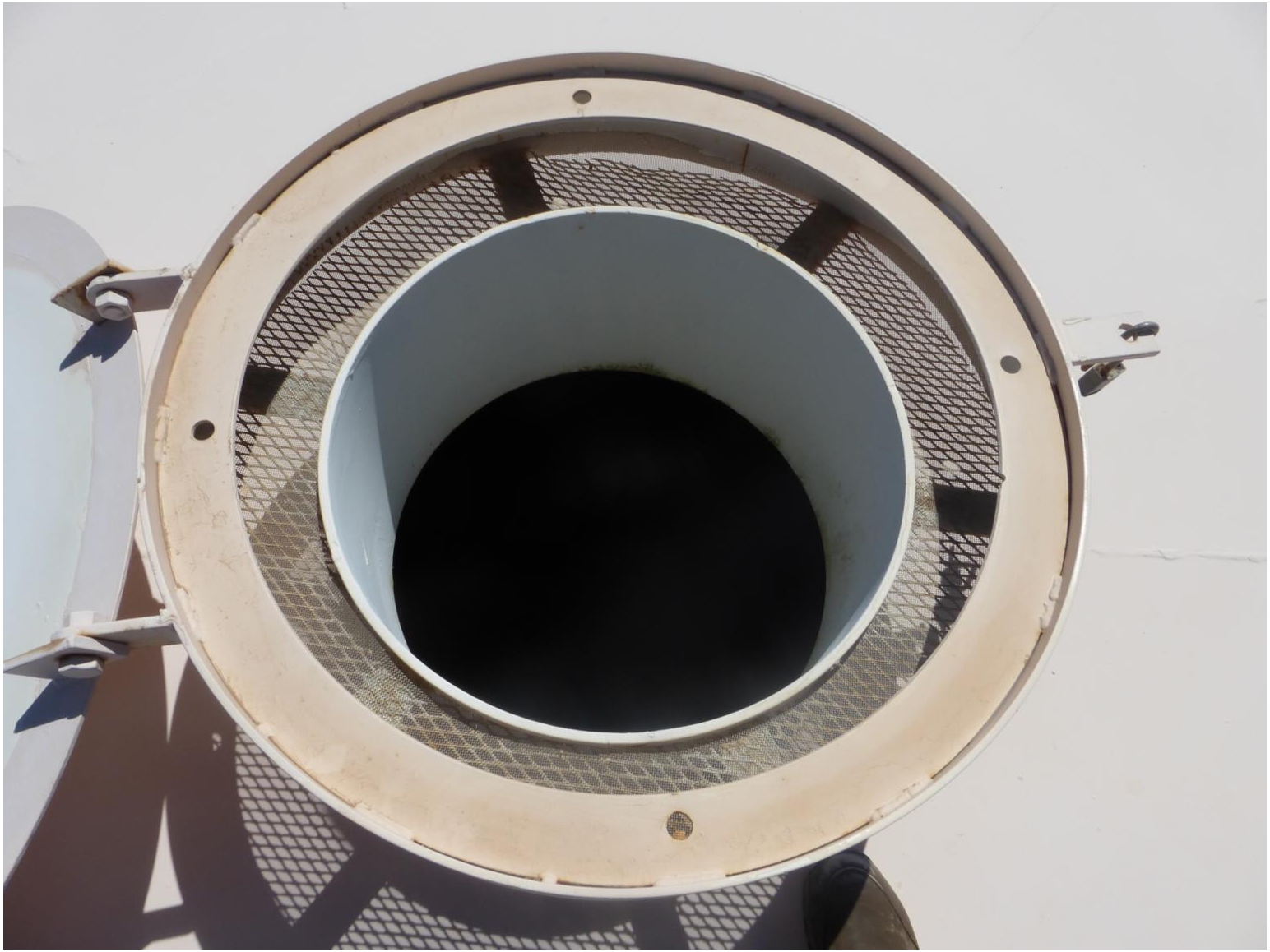
There is a locked secondary access hatch plate over the top of the vent. This hatch does not overlap the vent access and is not equipped with a gasket to ensure a tight seal.

Elevated Storage Tank (ST001)

The vent is equipped with an insect screen under a coarse bird screen. A shroud cover on the vent protects the vent opening against wind-blown dust. The vent appeared to be in good condition.

Vent hatch opened.

Elevated Storage Tank (ST001)



The interior of the tank appeared to be in good condition and the water appears clear, although there is some discoloration near the bottom of the tank.

Air relief valves on transmission line relief piping is below grade.

Air relief valves on transmission line with screen.

Air relief valve vault damaged by ATV. Common occurrence on this line.

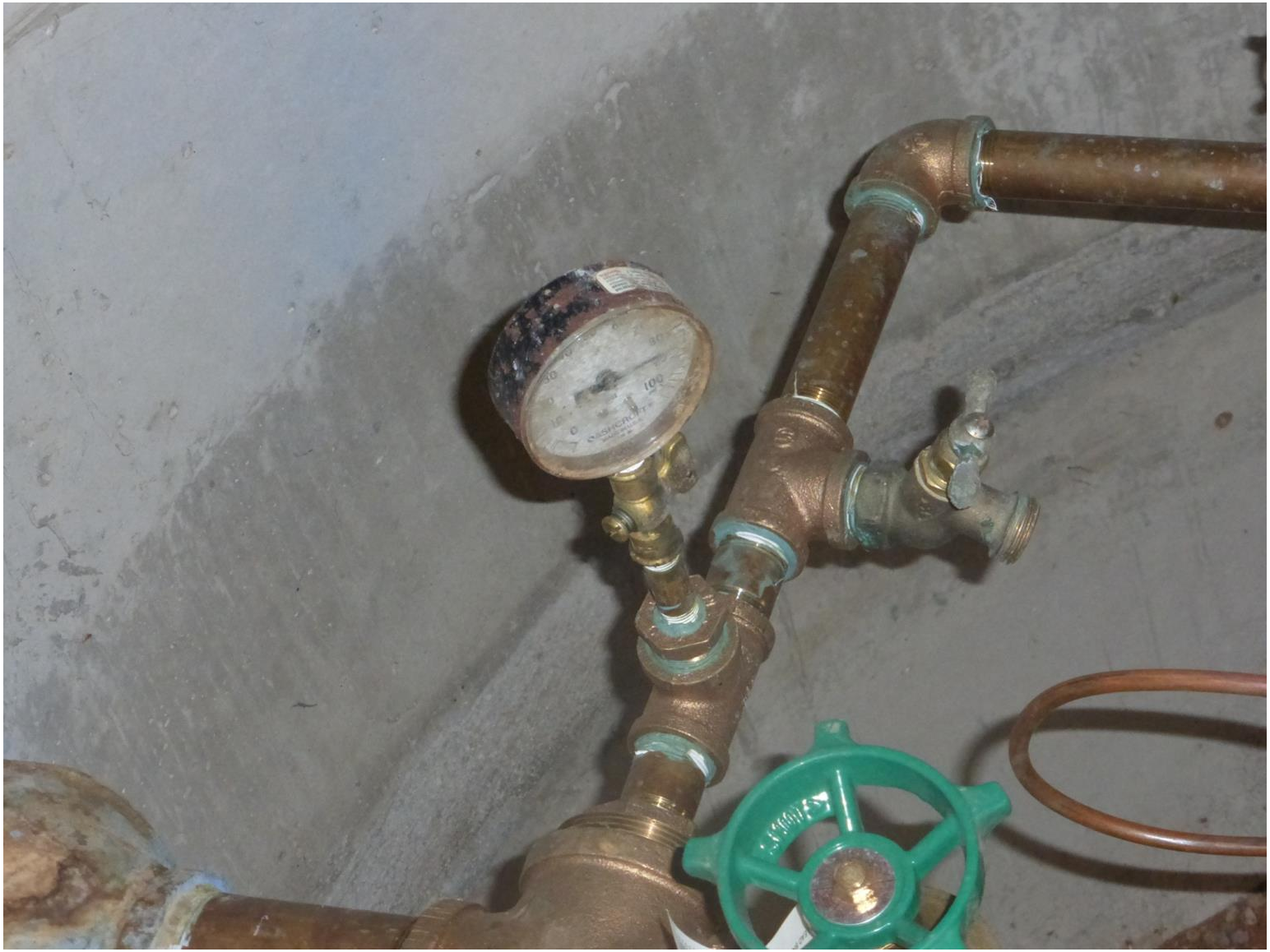
Chlorine residual Pisinemo (DS001) = 0.94 mg/L

Chlorine residual at home in Santa Cruz (DS002) = 1.13 mg/L

PRV piping.

100 psi pressure at home in Santa Cruz (DS002)—
Problem with PRV between Pisinemo and Santa Cruz.

~85 psi pressure on downstream gauge on PRV station.



100 psi pressure at home in Santa Cruz (DS002)

A pressure reading taken in Santa Cruz showed a reading of over 100 pounds per square inch (psi), indicating the PRV was not working.